

~~S-E-C-R-E-T~~

INFORMATION REPORT

REPORT

CD NO.

East Germany

**Ionosphere Radio Instruments Developed
by VEB WTBG**

DATE DISTR. 13 June 1955

NO. OF PAGES 3

NO. OF ENCLS.
(LISTED BELOW) 25X1

DATE OF INFO.

**SUPPLEMENT TO
REPORT NO.**

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE ACT, U.S.C., 54 AND IS BEING HANDLED AND TRANSMITTED BY THE GOVERNMENT OF THE UNITED STATES OF AMERICA TO AN OFFICIAL OF THE GOVERNMENT OF THE UNITED STATES OF AMERICA IN THE MANNER OF A CONFIDENTIAL SOURCE OF INFORMATION TO THE GOVERNMENT OF THE UNITED STATES OF AMERICA.

THIS IS UNEVALUATED INFORMATION

1. In 1954, so-called Panamera-Ionosphaerenstationen (panorama ionosphere radio installations) were developed at Wissenschaftlich-Technisches Bureau fuer Geraetebau (Scientific-Technical Bureau for Apparatus Construction (WTBG) in Berlin. [redacted] 25X1
[redacted] The radio installations concerned have their receiving and transmitting units coupled directly. The customer who ordered the equipment was apparently not interested in technical records for the receiving and recording units of the equipment which indicated that a copy of these units was not intended.
2. The 1952/1953 development program of WTBG included work on equipment designed for the reception and recording of impulses reflected from the ionosphere. [redacted] The equipment 25X1
was delivered without a transmitting unit. The specific problem to be solved by the equipment was the determination of the degree of deformation suffered by the reflected impulses. The experiences made during the development work on the set indicated that the requirements laid down for it could not be met on the basis of the technical specifications set forth by the customer. The Soviet agency which had placed the order for the development of this set apparently recognized this fact. In October 1953, it gave orders that only the mechanical side of the development project should be completed and the set delivered without acceptance tests.
3. [redacted] 25X1
the radio installation which [redacted] is to be built for a frequency range from 0.5 to 20 megacycles per second is to be set up east or north of Moscow for the testing of radio lines originating from the Soviet capital to the east and north. [redacted]

CLASSIFICATION

~~S-E-C-R-E-T~~

PERSON INFORMATION									
STATE	#	X	NAVY	#	X	NSRB	DISTRIBUTION		
ARMY	#	X	AIR	#	X	FBI			

- 2 -

25X1

25X1

4. In September 1954, negotiations on definite designs for the ionosphere radio installation designated 36/5 M were also conducted in Berlin. The Soviet representative stated that the installation was to be designed for horizontal radiation. Since the rhombic antenna requested by the Soviet customer will not cover the entire frequency range, the set will be built with three output stages (Endstufen), each of them coupled to one rhombic aerial. The three output stages will be connected subsequently to the common driver. Since the utilization of rhombic antennas excludes the use of a coupled receiving aerial, [redacted] the procedure of duplexing (Simultanbetrieb) be followed. This arrangement necessitates the separation of the transmitting impulse from the receiving unit by means of a diode circuit, which will reduce the sensitivity of the receiver by the factor 10. The receiver has an over-all sensitivity of 10 micro-volt. Thus the above-mentioned selective diode circuit would reduce the sensitivity of the receiver to 100 micro-volt. At present, a sum of approximately 560,000 DME had been spent on the development of the equipment. [redacted] Moscow was informed by WTBG that the 36/5 M installation would be completed by December 1955, if an additional sum of 400,000 DME was allocated.

25X1

25X1

5.

[redacted]

It was learned in January 1955 that the Soviets were working on plans for the erection of radio installations designed for telemetric registration. It appears, however, that practical results have not yet been achieved. After the plants [redacted] have been set up in the USSR, the Soviets intend to investigate the technical specifications for new installations which will make it possible to make, from one mother station, telemetric recordings with oblique direction of incidence at various places.

25X1

25X1

6. In September 1954, work [redacted] was temporarily suspended with the approval of the Soviets. It is intended to utilize the experience made with [redacted] equipment for the definite designs of [redacted] installation. This equipment will also have to be fitted with a telemetric recording device. The Soviet decision was not expected before the lapse of four or five months.

25X1

25X1

25X1

7. In November 1954, negotiations were started between the Heinrich Herz Institute and WTBG on technical specifications for the development of a standard radio installation for ionospheric research work capable of synchronous telemetric recording, as it has been used for a long time by some Western countries. The absolutely synchronous working of the reception recording device is to be guaranteed by the use of quartz clocks as they can, allegedly, be delivered by the radio engineering plant in Dresden. The WTBG has submitted a request for the

SECRET

SECRET

25X1

- 3 -

development of a standard radio installation for ionospheric research work to the Central Office for Research and Technology. It was expected that the request would be approved in March 1955. The cost for the project has been estimated at 580,000 DME. As far as was known, the development project has not been discussed with a Soviet agency in the GDR.

8. Between 2 and 4 December 1954, the S 1 ionospheric radio installation set up at Angermuende was accepted by a Soviet commission. It was recognized that the technical specifications laid down by the Soviet customer had been met. It was arranged that all the four installations ordered by the Soviets were to be tested in the same way and subsequently shipped to Brest-Litovsk. The four installations, two stationary and two mobile ones designated S 1 through S 4, were shipped between 22 and 30 December 1954. A special train was used for the S 1 and S 2 mobile installations which left Berlin at 2100 on 30 December.

9. During the acceptance tests for the radio installations involved, the following technical data were learned:

Frequency range	: 0.5 to 20 megacycles per second
time required for one registration of the full band:	10 to 30 seconds
(Durchdrehzeit)	
band spreading	: up to 1:4 over the entire frequency range
sensitivity of receiver	: 1 micro-volt
sending power	: with 1 mc/s: 25 KW with 10 mc/s: 14 KW with 20 mc/s: 8 to 10 KW
pulse width	: variable from 20 to 200 micro seconds
pulse frequency	: 12.5, 25, 50 and 100 c/s.

10. For the four ionosphere radio installations delivered the USSR paid through the **Tekhnopromimport** agency, a sum of 1,100,000 DME or 1,356,000 rubles to DIA. The WTBG spent, however, approximately 3,200,000 DME on the development and manufacture of the installations. WTBG requested the Office for Research and Technology to pay the balance between the price paid by the Soviets and the production cost. The State Planning Commission formed a commission headed by Professor **Otto Hachenberg**, chief of the Heinrich Hertz Institute, which checked on the development and production costs incurred by WTBG for the ionosphere radio installations. The commission ruled that the development cost should be fixed at 1,320,000 DME and the production costs at 1,880,000 DME and that WTBG should be paid the balance between the sum paid by the Soviets and the actual costs.

25X1

SECRET